

# Advanced Quantum Mechanics I (251a)

## Course Syllabus

This syllabus contains the plan for the semester. Announcement on the canvas website may supersede what is written below.

### Instructor:

Eslam Khalaf, email: [eslam\\_khalaf@fas.harvard.edu](mailto:eslam_khalaf@fas.harvard.edu)

### Teaching fellow:

Guan Ziquang, email: [ziguang\\_guan@fas.harvard.edu](mailto:ziguang_guan@fas.harvard.edu)

### Lectures:

Wednesdays and Fridays, 1:30 – 2:45 PM

### Section:

There will be one 1.5-hour section per week on Monday 1:30 – 2:45 PM Jefferson 256. The TF will post a questionnaire on canvas where you can indicate if there is any specific topic from the lecture or the problem set you would like covered.

### Office Hours:

Prof. Khalaf will hold office hours every Wednesday 4:00 – 5:00 pm in Lyman 328.  
Guan will hold office hours every Thursday 3:00 – 4:00 pm (room TBD)

### Textbooks:

The main textbook for the course is “*Modern Quantum Mechanics, Third Edition*” by J. J. Sakurai and Jim Napolitano, which is available online for free online through the Harvard library. You can also check many of the excellent graduate textbooks including Weinberg’s “*Lectures on Quantum Mechanics*”, Merzbacher’s “*Quantum Mechanics*”, and Landau and Lifschitz’s “*Quantum Mechanics: Non-relativistic theory*”. Lecture notes will be shared on canvas within 1 week of the lecture.

### Grades and Assignments:

The course grade will be divided between assignments and exams as follows: 50% for assignments, 15% midterm, 35% final. The midterm will be a one-hour proctored exam on Friday October 25<sup>th</sup>. The final will be a closed book exam on Monday December 9<sup>th</sup>. The exam begins at noon and is meant to be solved in three hours but you will be given up to 6 hours (until 6 pm) in a single seating to solve it. There will be roughly one assignment every week to be posted on Friday after the lecture. The deadline will be the following Thursday at midnight unless otherwise stated. Requests for extension for the assignment due date should be sent to the head instructor up to two days before the deadline. Problem sets submitted after the deadline without asking for an extension, but before the following Monday, will have a 20% penalty.

Solutions to the problem set will be posted after the Monday section. Solutions submitted after this point without an excuse will not be accepted.

**Policy on collaboration:**

You are welcome and in fact encouraged to collaborate for the problem sets. However, you should make sure that you fully understand the solutions you hand in. You may use generative AI tools as a personal tutor to help understand the material, but you **should not** use generative AI to solve the homework problems.

**Accommodation for students with disabilities:**

If you have a disability and have a letter from the Disability Access Office (DAO), we encourage you to let us know as early in the semester as possible. We will be happy to discuss your specific needs privately and to work with you to ensure that accommodations are provided as appropriate.